

BOEM ENVIRONMENTAL STUDIES PROGRAM: Planned New Study

Region: Pacific

Planning Area(s): California

Title: Expansion of West Coast Oceanographic Modeling Capability (PC-14-01)

BOEM Information Need(s) to be Addressed: BOEM analysts in the Pacific Region are limited in the geographic area where they can model oil spill trajectories. Data input to the model needs to be updated to enable a finer spatial and temporal resolution. Expanding the geographic range and data precision will allow BOEM analysts to conduct more accurate offshore oil and gas risk analyses. Expanding oceanographic modeling capability for oil and gas across southern California would meet the needs of BOEM Pacific Region's offshore oil and gas program.

Total BOEM Cost: TBD

Period of Performance: FY 2014-2016

Conducting Organization: TBD

Principal Investigator: TBD

BOEM Contact: [Susan Zaleski](#)

Description:

Background: The oil spill model, General NOAA Oil Modeling Environment (GNOME), which BOEM Pacific Region currently uses to conduct oil spill risk analyses, is limited in geographic area to active oil and gas development locations in southern California. The data input to the model needs to be updated and expanded to provide more accurate information to fulfill our responsibility to conduct offshore oil and gas risk analyses over a wider geographic area. The Integrated Ocean Observing Systems along the West Coast of the U.S. maintain and enable real-time data of wind, waves, and currents offshore coastal California. These data are typically stored in a format that can be brought into oceanographic models. Conducting a re-analysis or hindcast of the available oceanographic data would enable analysts and decision makers to see how wind, waves, and currents vary seasonally and yearly. Broadening the geographic range of available data and acquiring, compiling, and converting real-time data into a format to run in oil spill models will improve BOEM Pacific Region's ability to conduct oil spill risk analysis in southern California.

Objectives:

- Expand the geographic area that BOEM Pacific Region is able to examine for oil and gas risk analyses.
- Provide more up-to-date and accurate data for oil spill models.

Methods: This project will run a multi-year hindcast, or re-analysis, of winds, waves, and currents along the coast of California. This will be accomplished through acquiring and

converting existing data, incorporating the data into oceanographic models, running these models, and interpreting the results. The project would be completed in three sub-systems: (1) Winds would be calculated at high horizontal and temporal resolution and validated using existing datasets; (2) A wave model would be forced by the wind model results and be validated through in situ measurements; and (3) The ocean model would be run at high resolution and include temperature, salinity, and currents, assimilate *in situ* data, and be forced by the hindcast wind model results. This three-phase analysis will provide a more accurate representation of processes driving oceanographic conditions. The end products will be (1) data products that can be incorporated into NOAA's GNOME model for oil spill risk analysis; (2) visual outputs of oceanographic conditions along the coast of California; (3) assembled products and data that will be publicly available and can be incorporated into oceanographic models for future analyses; and (4) information that will be in a format compatible with other BOEM analysis requirements (e.g., Multipurpose Marine Cadastre and ESPIS).

Current Status:	This study is expected to be awarded through a Cooperative Agreement with a state university or other state entity.
Final Report Due:	TBD
Publications Completed:	None at this time.
Affiliated WWW Sites:	None at this time.
Revised Date:	September 13, 2013